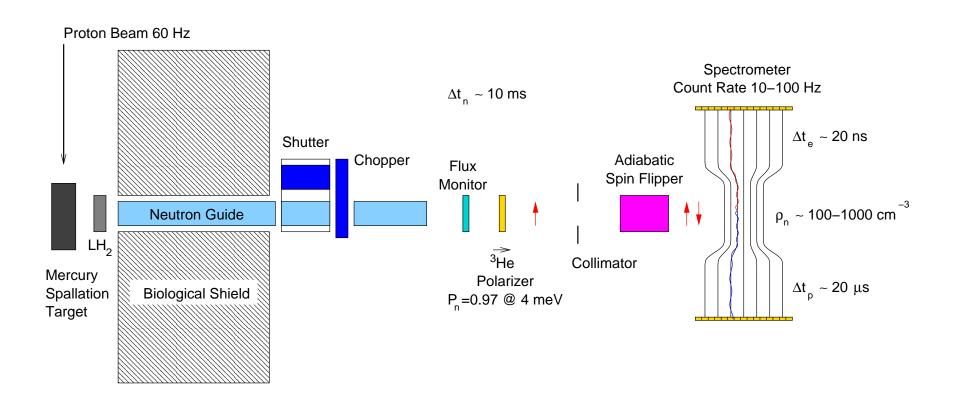
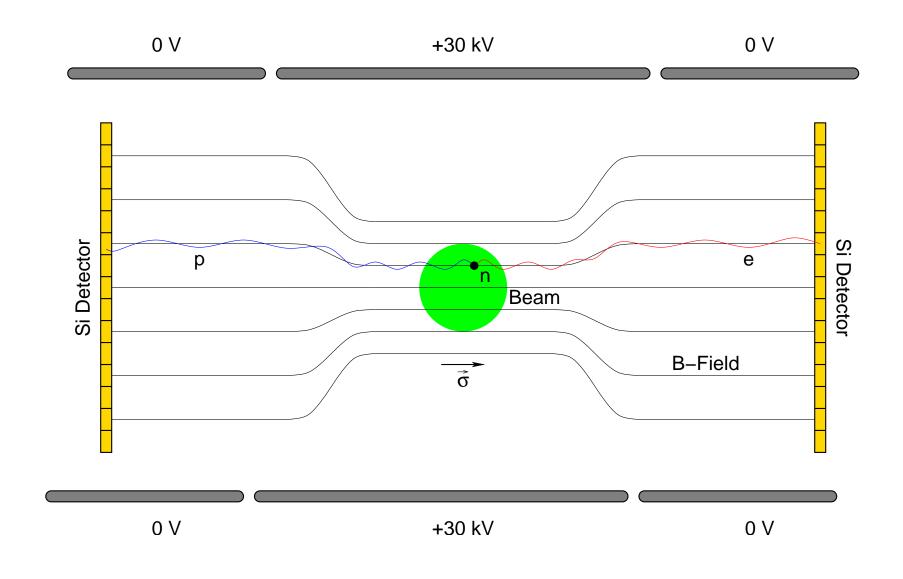
## Neutron $\beta$ -Decay with Cold Neutrons at SNS



## Neutron $\beta$ -Decay with Polarized Cold Neutrons



## **Simulations Required**

- Neutron transport
- Background production by beam
- Neutron spin transport
- Decay events
- Charged particle transport
- Particle interactions with detector